

**Section I (Amendments to the Claims)**

Please amend claims 30, 35, 38, 40 and 41, as set out in the following listing of claims 1-45 of the application.

Claims 1-29 (canceled).

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30. (Currently amended) A method of operating a semiconductor process including processing of or with a gas, said method comprising ~~sensing concentration of~~ transmitting infrared radiation through the gas for infrared radiation absorbance by a desired component of said gas, detecting the infrared radiation transmitted through the gas with a thermopile detector, generating an output from said thermopile detector indicative of concentration of said selected component of said gas, and controlling one or more conditions in and/or affecting the semiconductor process, in response to said output.
31. (Original) The method of claim 30, wherein the one or more conditions in and/or affecting the process include flow rate of a chemical reagent to a semiconductor process tool.
32. (Original) The method of claim 30, wherein the one or more conditions in and/or affecting the process include flow rate of a gas stream discharged from or flowed to a process unit in the semiconductor process.
33. (Original) The method of claim 32, wherein the gas stream to a semiconductor process tool is monitored.
34. (Original) The method of claim 32, wherein the gas stream flowed to an abatement unit is monitored.
35. (Currently amended) ~~The method of claim 33~~ A method of operating a semiconductor process including processing of or with a gas, said method comprising sensing concentration of a desired component of said gas with a thermopile detector, generating an output from said thermopile detector indicative of concentration of said selected component of said gas, and controlling one or more conditions in and/or affecting the semiconductor process, in response to said output, wherein the one or more conditions in and/or affecting the process include

flow rate of a gas stream discharged from or flowed to a process unit in the semiconductor process, and wherein the gas stream discharged by an abatement unit is monitored.

36. (Original) The method of claim 30, wherein the thermopile sensor output is employed to modulate a valve.
37. (Original) The method of claim 30, wherein the thermopile detector output is employed to modulate a set point of a mass flow controller.
38. (Currently amended) ~~The method of claim 30~~ A method of operating a semiconductor process including processing of or with a gas, said method comprising sensing concentration of a desired component of said gas with a thermopile detector, generating an output from said thermopile detector indicative of concentration of said selected component of said gas, and controlling one or more conditions in and/or affecting the semiconductor process, in response to said output, wherein the thermopile detector output is employed to modulate flow of a scrubbing medium in an abatement treatment step of the process.
39. (Original) The method of claim 30, wherein the thermopile detector output is employed to terminate a first process step and initiate a second process step.
40. (Currently amended) ~~The method of claim 30~~ A method of operating a semiconductor process including processing of or with a gas, said method comprising sensing concentration of a desired component of said gas with a thermopile detector, generating an output from said thermopile detector indicative of concentration of said selected component of said gas, and controlling one or more conditions in and/or affecting the semiconductor process, in response to said output, wherein the thermopile detector output is employed to modulate recycle of a fluid stream in the process.
41. (Currently amended) A method of operating a semiconductor process including processing of or with the material, said method comprising ~~sensing concentration of~~ transmitting infrared radiation through the material for infrared radiation absorbance by a desired component of said material, detecting the infrared radiation transmitted through the material with a thermopile detector, generating an output from sent thermopile indicative of concentration of

said selected component of said material, and controlling one or more conditions in and/or affecting the semiconductor process, in response to said output.

42. (Previously presented) The method of claim 41, wherein the material comprises a solid.
43. (Previously presented) The method of claim 41, wherein the material comprises a fluid.
44. (Previously presented) The method of claim 41, wherein the material comprises a liquid.
45. (Previously presented) The method of claim 41, wherein the material comprises a gas.